

REMARKS

Claims 1, 4-7, 10, 12-13, and 16-18 are pending in this application.

In this response, claims 1 and 10 are amended to specify that the structures are substantially continuous. This amendment is supported in the specification, for example, on page 9, lines 1-6. Claim 10 is also amended to specify that the adhesive layer covers only a portion of the release liner. This amendment is supported in the specification, for example, on page 7 and in Fig. 4.

Claims 5 and 12 are amended to properly depend from claims 1 and 10, respectively.

Claim 18 is amended to specify that the handling tape may be applied to either of the film and the release liner. This amendment is supported in the specification, for example, in Fig. 4.

Applicants respectfully submit that these amendments are made in response to the Examiner's arguments in the Office Action of January 16, 2003, and will not require a new search. Applicants respectfully submit that these amendments remove issues for appeal and place this application in condition for allowance. For at least these reasons, entry of these amendments into the record is respectfully requested.

In view of the above amendments and the following remarks, Applicants request further examination of this application and reconsideration of the rejections set forth in the Office Action dated January 16, 2003.

Claims 1, 4-6, 10, 12-13, and 16-18 stand rejected under 35 U.S.C. 103(a) as obvious over Calhoun et al. (U.S. Patent No. 5,462,765, referred to herein as Calhoun '765). This rejection is respectfully traversed for the reasons that follow.

The claims as amended specify that the release liner includes a substantially continuous pattern of structures. As defined on page 9 of the specification the term "substantially continuous" means a pattern of structures that creates a substantially uninterrupted network of channels in the adhesive layer. The continuous pattern of structures either terminates at the peripheral portion of the release liner or communicates with other structures that terminate at a peripheral portion of the release liner.

In contrast, Calhoun '765 does not contemplate structures that create an uninterrupted network of channels that terminate at a peripheral portion of the release liner. Col. 4, lines 48-56 state that a single "interconnected recess" may circumscribe one or more land areas, or that the

"recesses" may be disconnected, but a substantially continuous network of channels terminating at the periphery of the release liner is neither taught nor suggested. Calhoun '765 does suggest that the recesses may be placed in an orderly array (col. 4, lines 66-67), but this teaches that the individual recesses are preferably in a regular pattern, and does not suggest a continuous network of channels that would be sufficient to provide fluid egress from beneath the adhesive during application.

For at least this reason, Applicants respectfully submit that one of ordinary skill in the art would not be led to modify the recesses of Calhoun '765 to provide the continuous patterns of structures as presently claimed. Further, while describing recesses with varying shapes and dimensions, Calhoun '765 fails to teach or suggest the specific presently claimed angular structures that provide enhanced adhesion to handling tapes. For at least these reasons, Applicants respectfully submit that the presently claimed subject matter is not obvious under 35 U.S.C. § 103 in view of Calhoun '765. Reconsideration and withdrawal of this rejection are respectfully requested.

Claims 1, 4-7, 10, 12-13, and 16-18 stand rejected under 35 U.S.C. 103(a) as obvious over Calhoun et al. (U.S. Patent No. 5,897,930, referred to herein as Calhoun '930), and Abe (WO 99/35201, referred to herein as Abe '201). In view of the teachings of these references, it is contended that it would have been an obvious matter of design choice to one of ordinary skill to provide release liner structures with angles from 0-90° and then space these structures as presently claimed. These rejections are respectfully traversed for the reasons that follow.

As the adhesive backed graphic articles shown in Fig. 1 of the present application are manufactured, a splicing tape may be used in the production process to adhere the protective release liner (See 26 in Fig. 1) from one roll onto the release liner from another roll. Prior to application to a substrate, pre-mask or pre-space tapes may be used to protect the graphics, aid in handling the graphic article, or to transfer cut graphics from the liner into proper registration with the substrate. If the graphics are cut and a portion of the surrounding un-imaged film and adhesive layer are removed, the release liner is exposed, and the pre-mask and pre-space tapes should adhere sufficiently to the release liner to allow transfer of the graphic article into proper registration with the substrate.

If a release liner includes a network of continuous ridges spaced closely together (See 28 in Fig. 1), only a relatively small surface area on the tops of the ridges is available for bonding to a pre-mask, a pre-space, or a splicing tape. The closely spaced ridges also make it more difficult for the tapes to contact and adhere to the relatively flat land areas between the ridges. The pre-mask, pre-space or splicing tapes have specific conformability and adhesion requirements that enable them to perform their protective and transferability functions, and these requirements cannot be easily modified to enhance adhesion to a release liner.¹

Rather than chemically modify the pre-mask, pre-space or splicing tapes to enhance adhesion to a release liner, the invention seeks to mechanically modify the features on the release liner itself to allow the tapes to more effectively adhere to the liner. The release liners of the invention include structures with geometries that improve the adhesion of tapes to the liner without sacrifice of the application, bonding and visual properties of the final graphic film product. In particular, the present independent claims require that the structures have sidewall angles of 30-50° and a pitch of 500-2500 µm. Referring to Table 1 in the specification, if the structures on the release liner are flat topped ridges, and the sidewall angles of the ridges are reduced below 90° or 60°, adhesion to handling tapes is typically improved, even when the total bonding area at the top of the ridges remains substantially constant.

In contrast, Calhoun '930 and Abe '201 teach a very wide range of structural shapes and spacing for use on a surface of a release liner. It is contended that the presently claimed structural shape and spacing is no more than routine optimization of variables, which involves only routine skill in the art.² However, if the prior art recites a particular range, it is well accepted that selection of a range that overlaps with the prior art range is not obvious if the selected range provides results that would be unexpected in view of the prior art teachings.³ Calhoun '930 and Abe '201 each fail to teach or suggest the presently claimed pitch and sidewall angle of 30-50°. Calhoun '930 and Abe '201 each fail to recognize or appreciate that control of sidewall angle and structure spacing can have any impact on adhesion of a handling tape to the

¹ The Examiner notes several times in the Office Action that the imaged film layer is itself a handling tape. Applicants respectfully submit that this is not correct, since these handling tapes have conformability and adhesion requirements that are different from those of the imaged films.

² *In re Boesch*, 205 USPQ 215 (CCPA 1980).

³ *See, e.g. In re Woodruff*, 16 USPQ2d 1934 (Fed. Cir. 1990).

liner. The Examiner has noted no teaching in these references that would suggest to one of ordinary skill in the art to modify the structures in Calhoun '930 and Abe '201 to provide the presently claimed structures to provide enhanced handling tape adhesion. Therefore, Applicants respectfully submit that selection of the presently claimed ranges provides results that would be unexpected in view of the teachings of Calhoun '930. For at least this reason, it is respectfully submitted that the presently claimed subject matter is not obvious under 35 U.S.C. § 103 in view of either Calhoun '930 or Abe '201. Reconsideration and withdrawal of these rejections are respectfully requested.

In view of the above, reconsideration and withdrawal of the cited rejections are requested, and allowance of claims 1, 4-7, 10, 12-13, and 16-18 at an early date is solicited. If questions remain regarding the above, please contact the undersigned.